U.S. DEPARTMENT OF COMMERCE
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Evaluation of the
Telecommunications and Information Infrastructure Assistance Program

Case Study Report

Information Technology Initiative
94066

New York, New York

Site Visitor: Gary Silverstein

Dates of Visit: May 27, 1999

PREFACE

The following case study report is being issued as part of TIIAP's ongoing evaluation initiatives designed to learn about the effects of TIIAP funded projects. This report is one in a series of twelve based on in-depth case studies conducted in 1999 to study three subjects: (1) issues particular to rural communities (2) issues particular to urban communities, and (3) challenges in sustaining information technology-based projects. The case study reports give us evidence about the special challenges that each project faced and provide information for a better understanding of factors that can facilitate the success of such projects.

In addition to being urban or rural, the case study projects were selected because they involved distressed communities, represented innovative models for services, and affected measurable community outcomes. The case studies, conducted under contract by Westat, an independent research firm, consisted of extensive review of project files and records, interviews with project staff, representatives of partner organizations, and project end users. In addition to the 12 individual reports, a summary of findings across the projects is also available on the NTIA website.

NTIA wishes to thank the case study participants for their time and their willingness to share not only successes but also difficulties. Most of all, we applaud your pioneering efforts to bring the benefits of advanced telecommunications and information technologies to communities in need. We are excited about the case studies and the lessons they contain. We believe that these projects provide a unique insight into the variety of ways to eliminate "the digital divide" which exists in our nation. It is through the dissemination of these lessons that we can extend the dividends of TIIAP funded projects nationwide.

We hope you find this case study report valuable. You may obtain other case study reports, a summary of findings of the collected case studies, and other TIIAP publications through the NTIA website (www.ntia.doc.gov) or by calling the TIIAP office at (202) 482-2048. We also are interested in your feedback. If you have comments on this, or other reports, or suggestions on how TIIAP can better provide information on the results and lesson of its grants, please contact Francine E. Jefferson, Ph.D., at (202) 482-2048 or by email at fjefferson@ntia.doc.gov.

Stephen J. Downs, Director
Telecommunications and Information Infrastructure Assistance Program

Project Name	Information Technology Initiative
City/State	New York, New York
Grant Recipient	United Neighborhood Houses of New York, Inc.
OEAM Number	94066
Application Area	Public Services
TIIAP Grant Amount	$697,936
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Abstract	The Information Technology Initiative (ITI) was designed to install networked computer systems in five settlement houses and link them to a frame-relay wide area network (WAN) that would (1) enhance the quality of their programs by facilitating the integration and coordination of services for individuals and families, (2) equip participating settlements with computer tools to facilitate their administrative, planning, and evaluation tasks, (3) facilitate the sharing of information about individual clients across the participating settlement houses, and (4) provide settlement program participants, community residents, and groups with access to computers and the information infrastructure. The fourth objective—increased access to computers and the information infrastructure—was to be achieved through the development of community-oriented technology learning centers (called "family rooms") that had multimedia equipped, Internet-linked computer systems for education, recreational use, and job skills preparation. At the end of the TIIAP grant period, the five settlement houses were linked to the WAN. However, due to extensive delays in "wiring up" the pilot sites, settlement house staff and community residents had not had an opportunity to make extensive use of their new computers. As a result, many of the implementation and community objectives outlined in the TIIAP proposal were not achieved until after project funding had formally expired. By the time of the site visit, four other settlement houses had become participants in the WAN, bringing the total to nine settlement houses (all of the original settlement houses were still participating in the ITI). As a result of being connected to the WAN, these nine settlement houses have the capacity to send e-mail and computer files to each other, and to access information from the Internet through

	the World Wide Web.

A. Background

The original project was conducted in 5 of the 38 settlement houses in New York City. Four of these settlement houses were located in Manhattan, and one was located in Queens. By the time of the site visit, a total of nine settlement houses were participating in the Information Technology Initiative (ITI)—five in Manhattan, three in Queens, and one in Brooklyn.

Settlement houses are nonprofit, community-based organizations that provide community residents with a wide range of social and educational services. According to the United Neighborhood Houses (UNH) of New York 1998 Annual Report:

> In 1886, the first settlement house in the United States, University Settlement on the Lower East Side, opened its doors to all New Yorkers—immigrants and citizens, rich and poor, students and workers, young and old. The pioneering settlement houses taught adult education and "Americanization" classes, provided schooling to immigrant children, organized job clubs and offered after school recreation and library programs. Settlements today, in their warm and welcoming environments, still teach immigrants English and children to read. They also connect youth and adults and the Internet and offer seniors enjoyment and support. The mission of settlements also includes community improvement and social change to reduce poverty.

The 38 settlement houses in New York City serve over 500,000 residents through more than 500 programs in over 300 locations. Services provided in 1998 included information and referrals (e.g., to city, state, and federal programs), early childhood education, after-school programs, teen centers, English as a Second Language (ESL) and literacy education, GED classes, job training and employment programs, computer classes, citizenship instruction, legal counseling, tutoring, recreation, home-delivered meals for the elderly, mental health counseling, drug prevention, AIDS prevention, and senior centers.

Project Overview

Problems/Disparities the Project Was Designed to Address. The project was conceived in response to a 1991 report prepared by the grant recipient—the United Neighborhood

Houses of New York, Inc.—to assess the operations and management practices of New York City's settlement houses. The resulting report concluded that while "the settlements are efficiently managed," they needed "an agency-wide information system to collect and evaluate data on program participants, to plan services, and to manage more efficiently and effectively settlement services" (*Increasing the Effectiveness and Replicability of the Settlement House: Report Prepared for the Ford Foundation,* UNH, 1991).

In an effort to build upon this finding, the UNH created an advisory panel and convened a series of focus groups to identify a range of beneficial information technology applications for the settlement houses. The focus groups identified three primary needs for a comprehensive management information system: (1) the ability to communicate electronically,[1] (2) a participant record-keeping system that would enable the 38 settlement houses to share data about their participants, and (3) a resource database with information about the range of social services in the New York City region. In addition,

> The focus groups underscored another finding of the UNH/Ford report; namely, that as settlements have grown and become more diverse they are not only dealing with a wider range of more complex family and neighborhood issues, but they are funded by myriad public agencies and private foundations on a program-by-program basis. As a result, they find themselves organizing around *programs* rather than *people*, and responding to the back-office administrative requirements of funding agencies and foundations rather than to the front-office needs of families and staff. This continually frustrates the settlements' desire to integrate and coordinate programs and services to meet family needs in a holistic and administratively efficient way: neither the staff members nor the participants themselves have access to all the information necessary to make sound decisions and recommendations. Instead, the information within the settlement is held in the heads of settlement staff or in inaccessible paper files, or in standalone personal-computer-based systems being put in place by various funding agencies to meet the reporting requirements of specific categorical programs (UNH proposal to TIIAP, 1995).

Technical Approach. Based on these findings, UNH began to seek opportunities to enhance the management information capacities of the settlement houses. The TIIAP grant provided an excellent opportunity to "test the hypothesis that information technology, applied at the 'front line' in the delivery of human services, can improve the performance of the human services delivery system while strengthening inner-city neighborhoods and providing technology-based

[1]At the time the project was conceived, e-mail and the Internet were not widely used tools.

economic opportunities and Internet access to inner-city residents" (UNH proposal to TIIAP, 1995).

The Information Technology Initiative was designed to install networked computer systems in five settlement houses and link them to a frame-relay wide area network (WAN) that would (1) enhance the quality of their programs by facilitating the integration and coordination of services for individuals and families, (2) equip participating settlements with computer tools to facilitate their administrative, planning, and evaluation tasks, (3) facilitate the sharing of information about individual clients across the participating settlement houses, and (4) provide settlement program participants, community residents and groups with access to computers and the information infrastructure. The fourth objective was to be achieved through the development of community-oriented technology learning centers (called "family rooms") that had multimedia-equipped, Internet-linked computer systems for education, recreational use, and job skills preparation.

At the end of the TIIAP grant period, the five participating settlement houses were linked to the WAN. However, due to extensive delays in "wiring up" the pilot sites, settlement house staff and community residents had not had an opportunity to make extensive use of their new computers.[2] As a result, many of the implementation and community objectives outlined in the TIIAP proposal were not achieved until after project funding had formally expired.

Project Status at the Time of the Site Visit

By the time of the site visit, four other settlement houses had become participants in the WAN, bringing the total to nine settlement houses (all of the original settlement houses were still participating in the ITI). As a result of being connected to the WAN, these nine settlement houses have the capacity to send e-mail and computer files to each other, and to access information from the Internet through the World Wide Web.

Project staff indicated that the participating settlement houses had fully accomplished one of their four primary objectives, that is, providing staff and residents with access to the information infrastructure. In fact, visits to two of the nine settlement houses suggested that staff

[2] As is discussed in Section D, it took longer than anticipated to put the infrastructure in place (one of the buildings that had to be wired was over 100 years old). These delays were beyond the control of the grant recipient.

have integrated technology (e.g., computers, e-mail, Internet) into most of the programs they offer to community residents. Both of these settlements had a bank of networked computers in their family rooms (computer resource centers for community residents). The computers in these family rooms were being used to provide a variety of computer training courses and technology resources to community residents, program participants, and staff (see Section F).

Project staff indicated that some progress had been made toward achieving a second goal; that is, settlement houses were using computers to facilitate routine administrative and planning tasks. However, according to project staff, the use of computers to perform these functions was not as widespread or systematic as had been originally hoped. They indicated that more work was needed before the remaining two goals—using networked computers to share client data across settlement houses, and facilitating the integration and coordination of services for individuals and families—could be achieved (see Section D).

B. Community Involvement

Characteristics of the Grant Recipient Organization

The grant recipient was the United Neighborhood Houses of New York, Inc., the umbrella federation for 38 settlement houses in New York City. Founded in 1919, UNH represents its members through advocacy and public policy analysis, public education, and media relations. It also provides the city's settlement houses with management and technical assistance aimed at helping them bring more comprehensive programs to their neighborhood in a more effective manner. Examples of technical assistance in recent years include providing training, working with members to improve their fiscal management practices, helping members enhance their management information and computerization capacities, identifying potential funding sources, providing assistance on human resources issues, providing assistance in board development and recruitment, assisting in program replication efforts, and providing scholarship assistance through the UNH Scholarship Aid Fund.

During the TIIAP grant period, UNH devoted five staff to managing the ITI project and providing training and technical assistance to the participating settlement houses. At the time of the site visit, one individual had sole responsibility for working on ITI-related functions. This individual was also responsible for preparing technology-related issue briefs (e.g., on effective training practices), facilitating internship opportunities at individual settlement houses, and finding

new opportunities to integrate technology into the services provided by the remaining 29 settlement houses.

Characteristics of Project Partners

Settlement Houses. During the TIIAP grant period, UNH partnered with the five settlement houses that served as pilot sites. In addition to providing staff support, each of the settlement houses was required to contribute $25,000 (to cover the cost of developing the necessary infrastructure). Information about these five settlement houses—and the four additional settlements that were operational at the time of the site visit—is provided in Exhibit 1. Information about the two settlement houses visited during the site visit is provided below.

University Settlement Society. The University Settlement Society was one of the five original sites that participated in the TIIAP demonstration. Founded in 1886, University Settlement is the oldest settlement house in the nation. The program provides services to over 10,000 community residents through sites in Manhattan's Lower East Side and Harlem (University also maintains a campus in Beacon, New York). University Settlement operates more than a dozen programs for all ages. For example:

- The Early Childhood Center offers group day care, Early Head Start, and family day care.
- An after-school program provides community students with recreational and tutorial activities.
- The adult literacy program provides bilingual classes for individuals speaking Spanish, Chinese, and Bengali.
- Talent Search provides college guidance for high school students.
- A youth summer program provides day camp for children and intensive academic and work experience for teens.
- The senior center provides a breakfast and lunch program, delivers meals to homebound residents, and offers a variety of classes.
- The Community Jobs Network places public assistance recipients in paid internships and helps them find employment.
- An arts program manages a performance space.

- The mental health clinic provides counseling services.
- The Children's Intensive Case Management program provides comprehensive services to the families of children in crisis.

Exhibit 1: Characteristics of Settlement Houses Participating in the ITI Project

Settlement house	Location	Number of participants served
Sites participating during the TIIAP Grant		
Forest Hills Community House	Queens	10,000
Grand Street Settlement	Manhattan	2,500
Hudson Guild	Manhattan	10,000
Lenox Hill Neighborhood House	Manhattan	20,000
University Settlement Society	Manhattan	10,000
Sites added since the TIIAP Project		
Jacob A. Riis Neighborhood Settlement	Queens	3,000
School Settlement Association	Brooklyn	1,500
Sunnyside Community Services	Queens	6,500
Union Settlement Association	Manhattan	12,000

Jacob A. Riis Neighborhood Settlement House. The Jacob A. Riis Settlement House joined the ITI project in 1997. Located in a public housing project, the Queens-based program provides services to over 3,000 people of all ages. Services include after-school homework assistance, family and community support services, educational/vocational training, individual and group counseling, case assistance for seniors, pregnancy prevention for teens, cultural enhancement, and hot meals for senior citizens.

Other Project Partners. In addition to being supported by TIIAP, the project received financial support from several other sources: over $900,000 in foundation grants, two software donations from the Microsoft Corporation totaling $1.5 million, and an IBM donation of 250 computers and printers valued at over $750,000. In addition, other entities (e.g., local colleges and universities, private consultants) provided centralized (i.e., at UNH or some other central site) and site-specific (i.e., tailored for a single settlement house) resources, training, and technical expertise to the five settlement houses.

Site Selection

The five pilot sites were selected, in part, on the basis of their ability to contribute $25,000 (to cover the cost of developing the necessary telecommunications infrastructure). In addition, each pilot site had to have an existing local area network (LAN) in place. Project staff indicated that the original five sites shared several other characteristics, including (1) at least some degree of knowledge and experience in working with computers, (2) a decentralized structure (i.e., programs offered out of several buildings) that would benefit from e-mail communications, (3) a level of enthusiasm for integrating computers and the Internet into their administrative and community service functions, and (4) strong buy-in for the effort from top-level administrators.

An evaluation of the ITI project—conducted as part of the TIIAP grant by the Center for Research on Information Systems at New York University—reported that 9 of the 38 settlement houses expressed interest in participating in the pilot study. According to the final evaluation report,[3] the larger settlement houses were dropped from the project because of the relatively higher costs associated with installing the necessary telecommunications infrastructure. In addition, one settlement house in the Bronx was dropped because it could not come up with the

[3] Turner, Jon, et al. *Final Evaluation Report: Formative Phase of the United Neighborhood Houses of New York, Inc. Information Technology Initiative.* The Center for Research on Information Systems, New York University, October 1996.

necessary $25,000 match. The report quoted the (former) UNH information technology director as having the following philosophy about the site selection process:

> With an exploratory project of this kind, I deliberately abandon any attempts to have a random experiment and I try to set things up for success. I figure it is better to have a project succeed for the wrong reason (e.g., because the people are excited and enthusiastic and crackerjacks and not just "average joes") rather than have it fail for the wrong reason (such as there wasn't enough money, or there were other effects going on).

Project staff indicated that once the pilot phase was completed, there was no limit on the number of additional sites that could be added to the ITI. As stated previously, the ITI expanded to a total of nine settlement houses after the TIIAP grant expired. As technology becomes more accessible, UNH would like all 38 settlement houses to eventually have the compatible technology and management information standards (the overriding goal is to avoid having a two or three tiered system of technology "haves" and "have nots"). Project staff identified the following factors that are preventing the remaining 29 settlement houses from joining the ITI initiative:

- Some settlement houses are too small and/or poor to afford the $10,000 start-up costs associated with getting onto the WAN. In addition, some of the remaining sites do not have an existing LAN. Project staff indicated that some of the smaller settlement houses have started talking about ways to pool their resources to gain Internet access.

- Some settlement houses have too many locations, thereby making it very costly to electronically link all of their sites.

- Some settlement houses lack the resources—and/or are too geographically dispersed—to have the necessary technical staff on site to maintain the LAN and troubleshoot the computers (as is discussed in Section G, one important lesson learned from the TIIAP project is that each settlement house needs at least one network administrator, that is, this function cannot be handled from a central site such as UNH).

- Some of the settlement houses are already connected through other means.

- The directors of some settlement houses are not interested in obtaining access to the Internet or integrating technology into the workplace.

Involving Community Stakeholders

Given that UNH is a membership organization whose decision-making process is largely driven by the directors of the 38 settlement houses, the direction of the ITI was somewhat driven by the five participating settlement houses. However, project staff acknowledged that because they had considerably more knowledge about the potential of new and emerging technologies than their stakeholders/end users, they were in a position of having to take the lead on how the project should be organized. As such, during the TIIAP phase of the project, it was not always clear who had the lead role, UNH or the participating settlement houses.

At the outset of the process, UNH convened an advisory committee to obtain input into the preparation of the proposal to TIIAP. After the TIIAP grant was awarded, UNH convened an advisory board comprising representatives of the five settlement houses participating in the project. This panel continues to meet every couple of months. At the time of the site visit, these meetings were being used to facilitate information sharing among the participating settlement houses (e.g., how computers can be used to facilitate the client intake process, types of databases that sites are using to perform their administrative and planning functions). In addition to these advisory panel meetings, the technical staff from the nine settlement houses meet on a periodic basis to discuss such issues as Y2K, training needs, and remote access to the WAN. Finally, the family room coordinators meet on a periodic basis to discuss such issues as best practices for assessing how community residents are using the family rooms (e.g., the family room directors met several times to adapt a survey that could be used to document the impact of the family rooms at individual sites).

During the site visit, UNH and settlement house staff emphasized that the direction of the ITI has become more driven by the settlement houses. Individual settlement houses are now more likely to approach the UNH with a specific technical assistance need. As such, the ITI coordinator at UNH uses input from the participating settlement houses to set the agenda for the coordinator meetings. This shift in emphasis likely reflects a growing awareness among the general public (and settlement house staff) about how computers and the Internet can be used to transform administrative and community service functions. For example, University Settlement has used the coordinator meetings to share the following types of “best practices” with other settlement houses: outreach, scheduling access to the computers labs/family rooms, configuration of the computer lab, and security (levels of access).

Project Outreach

UNH worked with staff from the participating settlement houses to encourage their enthusiasm and support for integrating computers into their routine activities. At one of the settlement houses visited during the site visit, staff indicated that some of their colleagues were initially reluctant to use the computers. In the words of one respondent, they were "very professional people who did not want to feel like idiots."

In addition, each of the participating settlement houses had to devise strategies for informing community residents about the availability of computers and Internet access. In some cases this outreach was not necessary, since the computers were integrated into existing settlement house activities and classes (e.g., using the Internet to augment existing job search activities). In other cases, however, settlement house staff took additional steps to promote open community access. One of the settlement houses visited during the site visit, for example, developed brochures (in multiple languages) describing the new family rooms and made phone calls to other community organizations (e.g., women's shelters). In addition, staff encouraged community residents to tell their neighbors and friends about the computer access.

Training

During the TIIAP Grant Period. UNH was responsible for providing training to staff at the participating settlement houses. Interviews with settlement house personnel, conducted early in the project, found that many administrators and staff had no prior experience in working with computers or using the Internet. As a result, the initial training focused on such beginner-level topics as using Windows and MS-DOS, using the mouse, understanding computer concepts and terminology, and creating and saving files. Additional training was then provided on more advanced subjects, e.g., using e-mail and the Internet, developing and using spreadsheets, and database applications.

To facilitate the training activities, a full-time training coordinator was hired in July 1995. Between August 1995 and October 1996, the coordinator conducted 138 computer classes with 632 individuals. Approximately 30 percent of these sessions were targeted to first-time computer users, e.g., "Introduction to Windows/Mouse" and "Introduction to Computers."

Because all of these sessions were conducted at the settlement houses and only one individual was responsible for staff training, the training proceeded more slowly than planned. In the project's final report to TIIAP (December 1996), UNH identified other factors that affected the pace of training. For example, the instructional sessions often occurred before settlement houses' family room computers (used to conduct each site's training) were fully configured. As a result, the training coordinator would be unable to provide instruction as planned, because, for example, the necessary application had yet to be installed. In addition, the training sessions were not mandatory. As a result, a number of people who were scheduled to receive training during the early sessions were no-shows.

A final evaluation report (see Section C) identified several other factors that affected the quality of the project's training component. Specifically:

- Some of the staff training was provided before the computers were fully operational. As a result, prospective end users became frustrated by their inability to practice the new computer skills they had learned.

- The scheduling of the training sessions tended to be "opportunistic" rather than strategic. That is, staff members signed up for classes randomly (i.e., when they felt they could spare the time), as opposed to attending training in logical groupings (i.e., staff with similar job functions).

- Trainees needed more intensive and longer term instruction in such topics as designing and using spreadsheets and databases. According to the report, "a fuller integration of IT capabilities into settlement house work processes requires that individual staff members have *as needed access to technically-skilled personnel* with whom they can consult about applying IT to their specific work tasks."[4]

Toward the end of the TIIAP grant period, the training coordinator developed a guide that was designed to help the settlement houses assess and address their own computer training needs. The document addressed the following five areas: (1) articulating an organizational philosophy on the use of computer technology, (2) conducting an internal agency computer systems analysis, (3) analyzing staff computer skills levels and training needs, (4) designing a staff computer training component—with suggested topics for individual sessions, and (5) implementing and evaluating agency computer training activities.

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[4] Turner, Jon, et al., op. cit.

After the TIIAP Grant Period. Since the end of the TIIAP grant, the training coordinator (who was promoted to ITI Director in 1998) has continued to provide staff training at the settlement houses. According to project staff, as settlement house staff become more sophisticated in their use of computers, they have been better able to articulate their own training and technical assistance needs. These needs have been addressed through a variety of measures. For example, in addition to conducting staff training sessions, the UNH coordinator has helped individual settlement houses gain access to trainers in other institutions. The coordinator has also developed a series of guides designed to facilitate a "train-the-trainer" approach to teaching computer skills. These guides, tailored to individual settlement houses, are designed to address the following types of topics: (1) steps for assessing trainees' existing computer skills, (2) specific skills (e.g., keyboard, mouse, Windows, file management) that trainees should possess before entering a specific computer class, (3) specific steps for helping trainees learn the use of the mouse, (4) specific problems that trainees must frequently overcome when learning to use Windows applications, (5) types of learners and learning styles (e.g., visual/spatial learners, visual/linguistic learners, auditory learners, kinesthetic learners), (6) steps that trainers can take to prepare for instructional sessions, (7) steps for assessing what trainees have learned, and (8) resources that trainers can access to learn more about effective instructional practices.

The UNH training coordinator has also developed materials aimed at helping the settlement houses provide training to community residents. For example, a March 1998 document[5] prepared for family room coordinators specifies a generic process that settlement house staff can use to (1) determine how community residents want to learn about and use computers (e.g., would community residents prefer to take a course or use computers on their own during open access time), (2) assess community residents' computer skills and background, and (3) help community residents create an individual computer learning/skills development plan. The document also provides a recommended list of topics—with accompanying prerequisites—that settlement house staff can cover with community residents who have no prior computer experience.

[5] *How to Assist Computer Users Coming into the Family Room for the First Time.* Prepared by ITI staff (March 24, 1998).

C. Evaluation and Dissemination

Evaluation

During the TIIAP Grant Period. UNH contracted with the Center for Research on Information Systems (CRIS)[6] at New York University to conduct a formative evaluation of the initial pilot phase. The purpose was to (1) establish "environmental and operational baselines for two of the five settlements prior to the infrastructure becoming functional,"[7] (2) prepare a comprehensive chronology of all project-related activities and milestones, and (3) provide feedback to UNH and the settlement houses on the implementation of the project. The original evaluation plan also called for a summative component that would have focused on changes in work procedures, service delivery, communication, and information usage patterns. At the time of the site visit, the summative component of the evaluation had not been performed.

[6] The Center performs research on information technologies and their effective use in organizations.

[7] The evaluation was eventually used to collect data from all five of the participating settlement houses.

The evaluation used a combination of interviews, on-site observations, and document reviews to assess the implementation and impact of the pilot project. A final report, published at the end of the project, concludes that:

> The ITI project should be considered a success. The five pilot houses have an advanced information technology infrastructure of which they can be proud. It has the potential to allow the creative rethinking of how to deliver social services in a more efficient and effective manner.[8]

The CRIS report also contains a wealth of information about the process used to deploy the system and train end users. (The report's authors note that at the time the study was published, it was too early to assess the impact of the project on the settlement houses' service delivery structures.) It also provides a useful analysis of the different strategies that settlement houses used to develop their family rooms and integrate technology into their administrative and service delivery structures. Finally, the report offers insights into the process that UNH used to conduct the pilot phase of the project (a number of these observations and resulting lessons are documented throughout this case study).

In its final report to TIIAP, UNH noted that the CRIS evaluation team "adopted an explanatory and prescriptive approach for how technology implementation *should* unfold in an organization, and then usefully details the deviations of the ITI from this ideal." UNH suggested that:

> The report authors indicate that they have had considerable experience in system implementation, presumably in organizations having well-defined hierarchical management structures. But of greater utility, perhaps, would have been a methodology that was specifically adapted to the non-hierarchical situation presented by the ITI project, in which six autonomous nonprofit organizations worked together to achieve a common goal. Although responsibility for project leadership rested with UNH because it had applied for and was awarded the TIIAP grant, UNH had no authority to "manage" the implementation within the settlement houses themselves.

This comment was in response to the CRIS report's findings that (1) the goals of the pilot project shifted from reforming the delivery of social services to the implementation of the technology infrastructure, (2) UNH and some of the participating settlement houses failed to

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[8] Turner, Jon, et al., op. cit.

identify quantifiable project targets (e.g., reduce administrative costs by 10 percent, provide introductory Word training to 10 participants per week), and (3) UNH exerted too much control over the pace and conduct of the project's pilot phase. It should be noted that some of the concerns addressed in the CRIS report appeared to have been resolved by the time of the site visit.

After the TIIAP Grant Period. Since the conclusion of the TIIAP project, UNH staff have worked with the nine participating settlement houses to develop procedures for collecting basic data about the implementation and impact of the ITI. One survey, adapted from the Community Technology Centers' Network 1997 Technology Center National Survey, is being used to collect information on the following topics:

- The characteristics (age, gender, home zip code, household income, employment status, education status, languages spoken, race/ethnicity) of the staff and community residents who use the family room computer learning centers.
- How end users are using the family room computers, i.e., open access, computer workshops, computer classes, volunteering/mentoring, staff training.
- The frequency with which end users visit the family room computer learning centers.
- How end users first learned about the family room computer learning centers, e.g., word of mouth, flyer, or poster.
- End users' reasons for using the family room computer learning centers, e.g., to improve computer skills, to complete school work, to improve job skills, to use the Internet to find employment, to overcome computer fear/anxiety, to work on personal projects, to meet other people, to have fun.
- The specific skills that end users have gained while using the family room computer learning centers.
- The extent to which end users have become more comfortable using computers.
- The extent to which end users have access to computers in other settings.
- End users' recommendations for improving the family room computer learning centers.

At the time of the site visit, a version of the survey instrument for adult end users was being piloted in two of the settlement houses (plans are underway to eventually develop additional surveys for younger end users). Each settlement house will be responsible for collecting and compiling its own data. Under the direction of UNH's Director of Evaluation, UNH will provide the settlement houses with training in how to administer the survey among a sample of end users and analyze the resulting data. Project staff anticipate that data from the end user survey will enable settlement houses to identify potential improvements to the operations of their family rooms. The data are also expected to help UNH and the individual settlement houses document the range of community benefits that can be attributed to the ITI.

UNH has also worked with individual settlement houses to develop more specialized surveys and data collection procedures. One of the settlement houses visited during the site visit shared a survey, developed with assistance from UNH, that was being used to assess community residents' initial knowledge about computers. This two-page survey, administered when residents first visit the family room computer learning center, was being used to obtain information on (1) how the individual first learned about the computer center, (2) whether the individual knows how to type, (3) whether the individual knows how to turn on the computer, (4) how the individual feels when sitting down at a computer (e.g., very comfortable, a little nervous), (5) the extent to which the individual is familiar with computer-related terminology (e.g., mouse, file, keyboard, save, hard drive, floppy disk), (6) why the individual wants to learn how to use computers, (7) the extent to which the individual's children know how to use computers, and (8) the extent to which individuals are already able to conduct computer-related tasks (e.g., typing their names, editing a document, clicking a mouse, changing font sizes, moving text, saving a document on the hard drive). Information obtained through this survey enables settlement house staff to assess which computer activities would be most appropriate for a given community resident. Settlement house staff indicated that they had originally intended to use the same survey to collect follow-up data. However, they reported that many of the community residents stop coming to the center once they have acquired a necessary skill or achieved a given goal.

Dissemination

UNH has used a variety of strategies to disseminate information about the ITI. The project maintains information about the ITI on the UNH web site (this web site has resulted in some queries to UNH about ITI). Project staff prepared a paper on the ITI for the *Journal of Urban Technology* (Fall 1995) and have spoken about the project at national, regional, and citywide forums. Venues for these presentations have included the United Neighborhood Centers of America, regional and national meetings and conferences with groups such as the Community Technology Centers' Network (CTCNet), a community seminar on new media sponsored by Brooklyn Community Access Television, the National Urban League, and the New York City Council. In addition, UNH has worked with other local social service organizations to form the Human Services Information Technology Coordinating Group. This group, formed in 1993, has sponsored a variety of public forums and other activities aimed at promoting the effective use of technology in human service settings. Representatives from the participating settlement houses

have also conducted workshops for staff from other organizations and agencies. In addition, some of the settlement houses have hosted tours of their family room computer learning centers.

D. Problems Encountered

During the site visit, project staff identified a series of obstacles that had to be overcome during the TIIAP grant period. Some of these obstacles delayed the implementation of the ITI (because of these delays, the five participating settlement houses were just beginning to make use of their PCs and Internet connections at the end of the TIIAP grant period). Others affected the project's ability to achieve all of its original objectives. This section addresses four of the issues that affected the pace and scope of the project's implementation.

Delays Due to an Audit by the U.S. Department of Commerce's Inspector General

The project experienced extensive delays when a draft audit by the U.S. Department of Commerce's Inspector General recommended that TIIAP withdraw its approval of UNH's contract with one of its major consultants (according to TIIAP and project staff, the audit occurred because the ITI project represented one of the largest grants awarded in 1994). UNH immediately stopped all consulting work on the project because one of the questioned charges related to UNH's consultant selection process.[9] According to UNH staff, the audit consumed inordinate amounts of their time and disrupted UNH's consulting relationships at a key point in the project's implementation.

Delays Due to Difficulties with Existing Equipment and Gaining Line Connections

An initial inventory of equipment at the five participating settlement houses found that many of the existing PCs that UNH staff had expected to connect to the network could not be upgraded in a cost-effective manner.[10] Although an IBM donation of 250 PCs and printers helped to fill the resulting gap, the need to replace so many computers contributed to delays in the

[9] UNH sent a response in justification of the questioned expenditures on September 30, 1995. The Final Audit Resolution, dated May 2, 1996, reinstated all of the questioned expenditures.

[10] At the beginning of the project, UNH established the following minimum standards for the equipment that would be used by the participating settlement houses: 486 66 DX/2 processor, 8 megabytes of RAM, and a 340 megabyte hard drive.

project's implementation schedule. These delays were exacerbated by problems that NYNEX encountered in its installation of the frame-relay circuits. In addition, several of the participating settlement houses experienced delays in completing the necessary data cabling and LAN enhancements. The suspension of contractor-related activities that resulted from the U.S. Department of Commerce's Inspector General audit further delayed the LAN installations at three of the settlement houses.

The Original Project Goals Were Too Ambitious

UNH has not been able to achieve two of the primary goals outlined in its original proposal to TIIAP, i.e., facilitating the (1) integration and coordination of services for individuals and families and (2) sharing of information about individual clients across participating settlement houses. Project staff indicated that, in hindsight, they were overly ambitious in assuming that that they could simultaneously upgrade the settlement houses' technology infrastructure, enhance the coordination of settlement house functions, and change the way in which settlement houses access and exchange client data among themselves. However, interviews with project staff and a review of program documents suggest that a more complex combination of factors hindered UNH's ability to achieve these two objectives.

As originally envisioned, the pilot project was to support the development of an online Participant Record Management System (PRMS). This system—designed to link an individual (e.g., a child participating in an after-school program) with other household members (e.g., a parent participating in a literacy program)—would have enhanced the capacity of settlement house staff to holistically address the needs of an entire family. It would have also enabled the five participating settlement houses to electronically transmit information about individual clients. To prepare for this initiative, UNH hired a student from New York City Technical College to cross-tabulate intake forms for various programs at the five participating settlement houses. The purpose was to develop a framework that could be used to construct an agency-wide participant record-keeping system. However, UNH found that the overall task was more complicated than had originally been envisioned. According to UNH's final report to TIIAP (October 1997):

> When all of the program information had been gathered in one place, it was clear that it would not be easy to build a PRMS for a single settlement house, much less one that served the programmatic and administrative needs of multiple settlement houses. It was also clear that government mandates determined much of the data gathering, including the intake and reporting instruments used in various programs. Finally, it was clear that there was no coordination between multiple government systems, a fact that was loosely known previously but that was dramatically demonstrated by the Requirements Survey. Different agencies mandated different elements to describe participants, and even different pick lists for what appeared to be the same data element, such as ethnicity, and different definitions for such common data elements as income.[11]

[11]The student found that one of the settlement houses used 45 forms for seven programs. These 45 forms encompassed 160 pages and 8,651 data elements.

In the end, UNH and the participating settlement houses lacked the resources to concurrently upgrade their technology infrastructure and devise a new participant tracking system. Equally important, most of the settlement house staff had no previous experience using e-mail and the Internet and, therefore, could not envision how the PRMS could transform their workplace. As a result, UNH staff found themselves advocating a system that their membership was not yet ready to embrace, because the settlement houses did not yet have the practical experience to back up the vision.

At the same time that the PRMS was being developed, UNH was working with each pilot site to "help create a vision of how its settlement house could operate more effectively with the new technology, and to encourage staff throughout the settlement house to understand and adopt the new technology" (July 1995 progress report to TIIAP). Once again, project staff indicated that it was difficult for settlement staff to tackle these issues before first having some real-world experience in using PCs and the Internet. A finding from the CRIS evaluation report further suggests that by adopting an activist (as opposed to advisory) role on the ITI, UNH staff may have been promoting a transformation that their members were not ready to embrace:

> Several houses mentioned to the evaluation team that they believed UNH project management was making decisions on the project unilaterally, and that these decisions could have significant impacts on the operational and fiscal policies of the settlement houses. They felt that this unilateral decision-making was highly problematic because UNH project managers did not have intimate knowledge of the settlement house operations and environment, and thus did not understand the consequences of their decisions.[12]

By the time of the site visit, UNH and the nine participating settlement houses were looking to use the new technology infrastructure to systematically enhance their collective administrative practices. For example, a number of settlement houses were beginning to use their computers to capture data about their clients. In addition, the nine participating settlement houses were beginning to express an interest in developing a common database that could be used to (1) facilitate the sharing of data, and (2) satisfy the reporting requirements of New York City human service agencies. Unlike the earlier efforts, however, UNH appears to be letting the settlement house directors and staff set the pace and agenda for this ongoing initiative. As such, project staff

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[12]Turner, Jon, et al., op. cit.

indicated that they had learned two important lessons from their initial efforts to use technology to transform the administrative and service delivery functions at participating settlement houses. First, start small with a single function or program and build up to a larger system—as opposed to starting with a massive structure and working back down to end users. Second, integrate the system with existing data collection activities. Both of these lessons are discussed in Section G.

Difficulty Hiring Technical Staff

Like many human service technology projects, UNH had difficulty affording computer specialists in New York City's expensive labor market. Project staff indicated that they simply could not compete with the high salaries that technicians were receiving in the private sector. In addition, three of the project's primary technical staff (i.e., the LAN manager, associate ITI director, and applications manager) left for different reasons before the initiative was completed.

UNH addressed a part of this problem by working with New York City Technical College to establish an internship program that enabled settlement houses to obtain inexpensive technical assistance from college students in computer disciplines. These internships, which paid individuals $7.50 per hour[13] for approximately 20 hours per week, also enabled college students to acquire hands-on technical experience in a real-world setting. Interns were responsible for installing hardware and software, troubleshooting problems, working one-on-one with end users, and assisting in the family rooms. UNH and settlement house staff indicated that this arrangement worked well—in fact, several of the interns have been hired by the settlement houses. At the time of the site visit, the settlement houses were still using interns from New York City Technical College to help keep their computers in working order.

Several of the settlement houses also groomed their staff to take on the role of technology coordinator or network administrator. For example, interested settlement house workers were provided on-the-job training and sent to computer courses at local institutions. This approach offered staff (many of whom were community residents) the opportunity to enhance their job skills and employability. According to UNH's final report to TIIAP (October 1996), it also provided settlement houses with a long-term approach for "achieving low-cost technological self-sufficiency."

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[13]This had been increased to $10 per hour by the time of the site visit.

E. Sustainability and Project Expansion

At the time of the site visit, UNH was continuing to provide technical assistance and serve as a clearinghouse for technology-related issues. In addition, all five of the original settlement houses and four new sites were participating in the ITI.

Sustainability

In the spring of 1995, UNH applied for a second TIIAP grant. The proposal, designed to expand the ITI to a total of 15 settlement houses, was denied in September 1995. At that point, UNH and the five participating settlement houses faced some difficult decisions about whether to invest additional resources into the ITI. It was with "some skepticism and considerable apprehension"[14] that the five pilot sites decided in October 1995 to maintain the ITI through at least the first six months of 1996. One reason for this decision was that as the TIIAP project was winding down, settlement house staff were finally in a position to "gain some experience with the new technology."

According to UNH, once the settlement houses had an opportunity to use the new technology, there was never any question on their part as to whether or not the ITI should be sustained beyond the TIIAP grant period. As such, the biggest issue facing UNH and the settlement houses at the end of the TIIAP grant period was how to subsidize any future ITI-related activities. One option was for UNH to seek grant money to maintain centralized financial support for the settlement houses' computers and Internet connections. However, UNH staff began to realize that once the technology infrastructure and family rooms were in place, they would need to give up some ownership of the ITI.

Another option, ultimately adopted by the project team, was for the settlement houses to assume full responsibility for operating, repairing, and subsidizing their own technology operations. The decision reflects a strategy that appears to have worked well for both UNH and the settlement houses. At the time of the site visit, UNH had one individual who was still working full time on the ITI. As ITI Director, his primary responsibilities included (1) providing training

[14] UNH's final report to TIIAP.

and/or facilitating settlement houses' access to technology-related training, (2) facilitating settlement houses' access to on-site technical staff (e.g., through such arrangements as the internship program with New York City Technical College), (3) helping the remaining 29 settlement houses obtain access to new computers and the Internet, (4) serving as a clearinghouse of information on a wide range of technology, training, and fundraising issues, (5) serving as a common point of contact for technology-related issues across the nine settlement houses participating in the ITI, and (6) convening meetings of settlement house technical and program staff on strategies to document the use and impact of computers on outside participants.

Each of the settlement houses that participate in the ITI are responsible for devising a plan for securing technology funding. UNH staff indicated that the nine settlement houses have managed to obtain funding through a variety of public and private sources. The most prevalent strategy—used in both of the settlement houses that were visited during the site visit—focuses on spreading the cost of technology-related expenditures (e.g., Internet connections, technical staff, family room coordinators) across all programs (e.g., senior services, youth services, adult literacy, job search) that make use of computers and the Internet. At both the Jacob A. Riis and University settlement houses, for example, all grant proposals—regardless of the program or intended beneficiary—include a line item for technology-related costs. By using this strategy, project staff indicated that they had avoided having to seek "all or nothing" funding for maintaining the center's technology infrastructure. In the words of one respondent, "We will not lose our technology coordinator because one of our funding sources falls through." By requiring each program to share the cost of computer and Internet maintenance, project staff suggested they were also maximizing the likelihood that each program's staff would make effective use of the center's expanding technology infrastructure.

Project staff stressed that in addition to stable funding, the long-term sustainability of the computer labs requires that settlement houses have technical staff on site to maintain the computers and Internet connections. At the Jacob A. Riis Settlement House, for example, a full-time LAN administrator was hired to assure that system repairs are made in a timely manner. This individual—a former intern identified through the partnership with New York City Technical College—is responsible for administering the LAN, configuring computers, and troubleshooting problems. Given the need to make repairs as quickly as possible, UNH indicated that it would be infeasible for this function to be performed centrally (e.g., by UNH).

Participating settlement houses are also encouraged to designate another individual who can serve as an on-site family room coordinator. This individual is generally responsible for

(1) overseeing the daily operations of the family room (e.g., scheduling when each program would have access to the computer lab), (2) working with individual programs (e.g., ESOL) to assess how technology can best be integrated into the initiative's overarching goals, (3) identifying curriculum that would meet the needs of a given program, and (4) linking programs with appropriate educational and training resources.

Finally, project staff indicated that the long-term sustainability and expansion of the ITI depend on the continued communication among all participating stakeholders. At the time of the site visit, UNH was meeting with participating settlement houses on a regular basis to discuss training and technology issues. In addition, UNH staff were continuing to facilitate regular meetings among specific groups, e.g., technology coordinators, family room coordinators. These meetings were being used to resolve common problems, share best practices, identify common training needs, and develop shared data collection practices.

Project Expansion

At the time of the site visit, nine settlement houses were participating in the ITI. In each of these sites, computers and the Internet had become fully integrated into the activities provided to community residents. UNH staff indicated that they were looking to expand the ITI to the remaining 29 settlement houses. As a first step, UNH developed a technology program planning document that explained the family room concept, and identified a series of practical issues that sites need to resolve before establishing a computer learning center (see Section G—Lessons Learned—for a description of these issues). As a follow-up measure, project staff were looking to help the remaining 29 settlement houses develop technology plans that assessed their community service and administrative needs.

In addition to the ITI, UNH and the settlement houses—in collaboration with community members, teachers, parents, students—have undertaken another federally funded technology initiative.[15] The project, American Gateways: Immigration and Migration in the United States, is designed to develop web-based content on the history of immigration and migration in the United States. UNH and its membership are providing local classrooms with an online history of how settlement houses served as a gateway for the nation's immigrant population. The settlement houses are also helping to provide community residents with opportunities to use the Internet to

[15] The project is funded through a U.S. Department of Education Technology Challenge Grant.

relate their families' immigration experiences. The settlement house staff for the Gateways Project is housed at UNH.

F. Project Outcomes

Impact on End Users

By the time of the site visit, the ITI had significantly transformed the way in which the participating settlement houses provided services to community residents. For example, all of the settlement houses were using their family rooms to offer adults open access to computers and the Internet. Community residents were using this enhanced access to practice word processing (e.g., to enhance their employability) and browse the Internet (e.g., to learn about job openings). Equally important, all of the settlement houses had integrated computers and the Internet into their community programs. The following describes the types of technology-related activities in use at the two settlement houses visited during the site visit. It should be noted that due to the delays described in Section D, the benefits described in this section were not provided to end users until after the TIIAP grant had expired.

Jacob A. Riis Neighborhood Settlement House. The family room at the Jacob A. Riis Neighborhood Settlement House is used to provide computer and Internet access to children, adults, and families. Equipped with 18 Macintosh computers, the lab is open 30 hours per week. At the time of the site visit, the family room was being used to provide the following services to community residents:

- **After-School Program.** An after-school program provides community youth with access to computers to complete their homework assignments and practice fundamental skills on academically-based software programs. At the time of the site visit, the after-school program was serving approximately 140 neighborhood youth.

- **Teen Program.** One evening per week, the family room provides teenagers with supervised Internet access. These sessions are primarily used to conduct research for homework assignments.

- **Computer Camp.** During the summer, the family room is used to provide a computer camp to 12 neighborhood youth. As part of this camp, offered 20 hours per week, participants use computers to work on math, reading comprehension, and language arts. The camp charges a $108 fee.

- **Adult Computer Class.** A computer class, offered nine hours per week, provides approximately 40 adults with experience in using various software packages (e.g., Excel, Word, PowerPoint). The primary purpose is to enhance the employability of community residents.

- **Family Day.** On Saturday mornings, the family room provides general unstructured access to parents and children who want to work together on the computer.

- **Open Access.** Twice per week (in the evening), the family room provides adults with open access to the computer lab. Participants often use open access to work on their resume, enhance their typing skills, and use the Internet (e.g., for job search).

During the site visit, children in the after-school program were using the computers to complete their homework assignments and work on academic software programs that stressed basic mathematics and English skills. The students, who represented a wide range of ages, worked quietly and diligently. Staff, who worked closely with the students to make sure that they remained on task and understood their assignments, stressed that they preferred to have the students work with software packages as opposed to the Internet (since it minimized opportunities for students to gravitate toward non-educational activities).

In another building, adults were completing an adult computer class. Staff at Jacob A. Riis indicated that, prior to having a computer lab, the settlement house was primarily providing services to youth and seniors. The combination of the new computers (with Internet access) and welfare reform (which included more stringent work requirements) had helped to transform the settlement house's role in the community. Specifically, the center was no longer viewed merely as a place for "kids" as adults started using the family room's open access hours to conduct online job searches. To guide these changes, staff indicated that they were preparing to develop a strategic plan that will ensure that the family room's future offerings continue to reflect the needs and interests of community residents.

University Settlement Society. The computers at the University Settlement Society have been integrated into many of the center's programs. The family room—equipped with 17 Pentium computers, 2 printers, and a scanner—is open 36 hours per week (including 9:30 a.m. to 4:30 p.m. on Saturdays). At the time of the site visit, the computer lab was being used to provide the following types of services to community residents:

- **Day Care Program.** The 19 children (ages 3-4) in the settlement house's day care program spend 1 hour per week in the family room's computer lab on educational software programs, e.g., The Magic School Bus.

- **Early Childhood Program.** The 15 children (ages 4-5) in the settlement house's pre-kindergarten program spend 1 hour per week in the family room's computer lab on educational software programs designed to develop their letter, number, color, and shape recognition skills.

- **After-School Program.** The 75 children in the settlement house's after-school program spend 5 hours per week in the family room's computer lab practicing a variety of skills. For example, children between the ages of 5 and 8 use educational software designed to enhance their understanding of basic math, typing, colors, time, and alphabet skills. Children between the ages of 8 and 11 also work with mathematics CD-ROMs. The oldest children use computers and the Internet to work on their typing, word processing, and research skills.

- **Saturday Youth Program.** On Saturdays, the family room provides approximately 50 children (ages 5-11) with 5 hours of computer and Internet access. Younger children work on the lab's educational software, while older children (ages 7-10) use the Internet to research a given topic.

- **Talent Search.** This program—offered 4 hours per week—provides 12 teenagers (ages 12-21) an opportunity to use word processing, graphics applications, and a photo scanner to publish their writing projects.

- **English for Speakers of Other Languages (ESOL).** This program—offered 16 hours per week—provides approximately 70 adults with an opportunity to use educational software to practice their English. It also provides participants with access to word processing and the Internet.

- **Community Job Network.** This program provides adults with access to word processing and other office applications. It is designed to enhance participants' employability in office and computer-related positions.

- **Community Access.** Open access is provided for community members who are not participating in any of the family room's other programs. In addition, residents can receive assistance with a variety of needs (e.g., resumes, preparing business cards, using the Internet for job search) during community access.

Project staff described a wide range of activities and products that would not have been possible without access to computers and the Internet. For example, the day care classes have been using the scanners and e-mail to communicate with children in France. Older students posted their biographies on the Internet and used e-mail to correspond with a school in California. In addition, residents taking the ESOL class have been using the family room to document their family histories, write a home remedy book, and prepare a guide for new immigrants. This guide—

being developed in collaboration with the Lower East Side Tenement Museum—will be posted on the Internet, distributed at local airports, and sent home with school children.

Impact on Grant Recipient and Project Partners

UNH and settlement house staff stressed that the ITI has had a major impact on the way they perform their administrative and fundraising functions. In addition, the introduction of e-mail has also changed the way in which they communicate among themselves. As discussed in Section D, the impact of the ITI has not been as profound as was originally envisioned. For example, at the time of the site visit, the participating settlement houses had not developed a process for sharing client data. Nor had they created internal databases designed to track the types of services being provided to all of a household's family members. However, most staff at the participating settlement houses had started to use the new technology infrastructure to facilitate communication (e.g., using e-mail to share drafts of proposals or increase the overall level of collaboration on common issues), tackle a variety of administrative tasks (e.g., using Excel to develop a program's budget), and conduct research (e.g., using the Internet to identify potential curriculum).

At both of the settlement houses visited during the site visit, staff were using a database program to track a range of information about program participants (e.g., sources of financial assistance, employment status, marital status, emergency contact information, settlement house programs enrolled in). In addition, many of the other participating settlement houses were using the computers and Internet connections to conduct a variety of functions, including:

- Maintain updated lists of local community service agencies, e.g., for outreach and publicity purposes, to recruit participants into specific programs.
- Track client enrollment, demographics, training, job placement, and job retention for residents participating in employment and training programs.
- Generate labels to invite seniors to special events (e.g., birthday parties).
- Maintain records for Medicaid and Medicare billing.
- Monitor fundraising mailing and donations.

At the time of the site visit, UNH was also in the process of developing an overview of how each of the nine participating sites was using technology to augment its administrative and service delivery functions. The findings from this exercise will be used to identify best practices that can be shared with other settlement houses.

G. Lessons Learned and Recommendations for Other Communities

In its final report to TIIAP (October 1996), UNH identified a series of lessons it had learned as a result of the ITI, including:

- Networking is critical to the future of settlement houses.
- Family room computer labs are ideal for bringing the information superhighway to the inner city.
- Executive directors must become deeply involved, and early.
- Expect that ongoing support costs will increase markedly.
- Training presents a major challenge—especially if there is a wide variation in the skill levels of staff and clients.
- Establish a strategy and timetable for involving end users.
- WAN and LAN staffing should be integrated.
- For federations and umbrella organizations, a centralized process for enhancing technology infrastructures is beneficial, but difficult to implement—given the diverse needs and priorities of the various stakeholders (i.e., settlement houses).
- Relationships with local colleges and universities can be beneficial.
- It is not possible to remove information technology after it has been incorporated into an existing program.

During the site visit, it was apparent that UNH and settlement house staff had continued their learning process. Project staff described a range of recommendations that they would pass on to other organizations seeking to adapt the ITI approach. These lessons are summarized below.

Involving Community Stakeholders

Buy-in of Top-Level and Front-Line Staff is Essential. UNH and settlement house staff emphasized that the use of technology to enhance administrative and service delivery functions can only succeed if stakeholders at all levels buy into the proposed goals and approach. Further, top-level management needs to do more than offer verbal support for the initiative, e.g., allocate additional funds for technology-related expenditures, establish technology-related performance goals, attend technology-related meetings, allow staff time for training.

Involve Stakeholders and Prospective End Users in the Planning and Implementation Process. Soliciting frequent input from all affected parties maximizes the likelihood that the resulting system will meet the needs of—and therefore be used by—the intended end users.

Training and Technical Assistance

Provide Continuous Training in New and Emerging Technologies. UNH and settlement house staff emphasized that training cannot be viewed as a one-time event. Rather, technology initiatives need to anticipate the need to provide additional training every time their system is upgraded. They also need to build upon end users' growing appreciation of how technology can enhance their capacity to provide services and perform administrative tasks. For example, once workers have learned the fundamentals of Access and Excel, they will likely benefit from supplemental instruction in how databases and spreadsheets can be used to track clients and prepare budgets. A finding from the CRIS evaluation emphasizes this point:

> One settlement seemed to believe that *several hours* of Access training would provide a staff member with the skills necessary to design database applications. In reality, just as knowing how to use MS Word does not make one a competent novelist, knowing how to use MS Access does not make one a competent database designer.[16]

Managing and Maintaining a Technology Center Requires Specialized Personnel Who Are Readily Accessible to Staff and Community End Users. UNH and

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[16] Turner, Jon, et al., op. cit.

settlement house staff emphasized that operating a family room requires on-site staff who can plan the services, coordinate the use of the facility, develop curriculum materials (and effective methods for integrating technology into the curriculum), provide technology training, staff the facility, and conduct repairs on an as-needed basis. Given the amount of time and energy required to fulfill any *one* of these functions (and the level of expertise required to perform any one of these functions well), projects should hire one individual to serve as a technology educator and another to maintain/fix computers.

Anticipate Staff Turnover. Human service technology projects are vulnerable to losing their technical staff to organizations that can offer higher wages, benefits, and career/educational advancement opportunities. Project staff therefore recommended that human service technology initiatives devise creative methods for overcoming the high cost of maintaining computer specialists. The ITI's use of college interns represented a resourceful and cost-effective approach for filling in staffing gaps as they arose (in the words of one respondent, "The internships enabled us to always have someone in the pipeline"). The internships also proved to be a good vehicle for exposing computer students to the nonprofit sector (some of these interns eventually became full-time settlement house employees).

Do Not Provide Training Until Equipment Is in Place. Project staff indicated that the initial training occurred before many workers had computers at their desks. As a result, they were unable to practice what they had just learned. In addition, because the training sessions raised workers' expectations, staff affiliated with the ITI indicated that they began to lose credibility once the deployment of the WAN was delayed. The CRIS evaluation report quoted the director of a participating settlement house as saying, "My name is mud in my organization. Every time I mention e-mail, people just roll their eyes."[17] In its final report to TIIAP, the UNH Executive Director concluded that, in hindsight:

> I would not have generated staff interest until much further into the project. The long delays with infrastructure creation frustrated everyone. For better or worse, the project was first funded for infrastructure. We should have just built it [the technology infrastructure] and then told staff what we had put in place.

[17] It is important to note that this statement was made in November 1995, at a time when the project was experiencing extensive delays due to difficulties gaining line connections and the ongoing audit by the U.S. Department of Commerce's Inspector General.

Training Should Be "Strategic" as Opposed to "Opportunistic." Whenever possible, avoid providing training to a mix of individuals who find that it is convenient to meet at a given time. By bringing together personnel who perform vastly different tasks and/or possess a wide range of computer skills, projects lose the opportunity to provide training that focuses on a specific function. Therefore, project staff recommended that organizations arrange their computer classes around specific job types or skill levels.

Institutionalize Training, e.g., Hold Training Sessions at the Same Time Every Week. One of the settlement houses visited during the site visit uses its family room to conduct staff training at the same time every week. According to project staff, this arrangement makes it easier for workers to set aside time to attend these regular sessions. Equally important, the inclusion of training on the family room's weekly schedule sends a message that top management is committed to professional development and using technology to enhance service delivery.

Evaluation

Technology Projects Need to Invest the Time and Resources into Collecting Credible Evaluation Data. In an article in the *Journal of Urban Technology*, the ITI Director concluded that "favorable anecdotal reports will not suffice; if the project is to achieve its objectives as a demonstration that will change funding policies so that information technology costs can be incorporated into operational budgets, hard evidence will be required."[18] During the site visit, project staff emphasized that prospective funders want to see documented confirmation that technology is having on impact on administrative and service delivery functions. In addition, as settlement houses become more vested in their use of technology, they will often want to become involved in deciding what type of data should be collected, e.g., to obtain information that they can use to improve the efficiency and impact of their client-related technology activities.

Identify Specific and Measurable Objectives That Delineate How Technology Will Affect the Workplace. As with many technology projects, the ITI has tended to focus on the achievement of such broad and generic goals as enhancing "program quality

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[18] Maxine Rockoff, "Settlement Houses and the Urban Information Infrastructure." Published in the *Journal of Urban Technology,* Fall 1995.

through better integration and coordination of services" and increasing "the efficiency with which programs are administered." The use of more specific targets (e.g., use online job search to find employment for 40 residents per month) can help managers and staff focus on *how* technology will be used to enhance program quality and efficiency. It can also serve to raise (or curb) staff expectations of what can be accomplished through the use of technology. The CRIS evaluation report notes that

> These targets force implementers to think through the design of specific changes to the organization (such as changes in technology, work policies and procedures, employee jobs, organizational structures, etc.) that are necessary to achieve these detailed target objectives. When such detailed targets are not present, the risk of *lapsing* into a "technology-push" implementation greatly *increases*. Technology-push implementations tend to focus on the IT itself rather than on the organizational utility of the IT. That is, these implementations fail to address how specific IT features can be appropriated by specific individuals to accomplish specific work tasks within a specific organizational setting.[19]

Sustainability

Do Not Have Technology as a Stand-Alone Line Item That Can Die if Proposal Funding is Not Obtained. In its final report to TIIAP, UNH indicated that it was not possible to remove technology once it has been infused into a centers' daily operations and service delivery structure:

> An executive director can close most programs down if continuation funding does not materialize. But this is not an option in the case of an information technology project. As the WAN Administrator put it, "the project just pays the doctor and the hospital; then the houses have to pay for the diapers and formula."

UNH and settlement house staff emphasized the benefit of spreading the cost of technology-related expenditures across all programs that make use of computers and the Internet. In the words of one respondent, "We are not asking foundations to fund computers in literacy class. Rather, we are asking foundations to fund a literacy program that includes access to a

[19] Turner, Jon, et al., op. cit.

computer." This approach can minimize the likelihood that the long-term maintenance of technology becomes overly dependent on a single funding source.

Administrative/Planning

Conduct a Comprehensive Feasibility Study Prior to Finalizing Your Technical Approach. As discussed previously, UNH conducted a comprehensive needs assessment prior to seeking TIIAP funding. However, project staff indicated that in hindsight, they would have also benefited from a more thorough assessment of the feasibility of implementing their proposed approach—within the timeframe specified by TIIAP—before submitting a proposal to TIIAP. They suggested that future projects would likely benefit from such a feasibility study that assesses the time and steps required to assemble the partnership, develop a coordinated training approach, complete the necessary information infrastructure, and collect the necessary baseline data. Project staff also cautioned that the more complex the proposed approach, the greater the necessity for a planning period that enables projects to assess whether their existing infrastructures (e.g., technology, partners, staff) are sufficient to support the proposed approach.

Do Not Proceed on a Vision Until You Are Able to Describe It in Operational Terms. UNH and settlement house staff indicated that in order to successfully promote a technology vision, projects need to be able to provide stakeholders with a detailed roadmap of how they will reach their intended objectives. This plan, which can build upon a needs assessment and feasibility study, could be used to identify all of the nuts and bolts issues that will need to be addressed along the way. A technology program planning document—developed by UNH in December 1997—was used to help settlement houses identify a succession of issues that they would need to address before establishing a computer learning center, including:[20]

- *Whom should the community computer learning center serve?* Examples might include agency staff (staff training), agency program participants, drop-ins from the community, categories of people (e.g., children, youth, adults, seniors, families, homeless, unemployed, staff from other organizations).

- *What kinds of programs and services should the community computer learning center offer?* Examples might include scheduled computer classes, computer workshops, open access (i.e., use of computer equipment and software without formal instruction), renting the computer learning center to other groups.

[20] Developed by Michael Roberts, United Neighborhood Houses of New York, Inc. (December 9, 1997).

- *Where will computers be physically located?* Will there be a security system in place that safeguards against theft? Will there be appropriate ventilation (heating, air conditioning, pipes) in place to protect the equipment?

- *What days/hours will the community computer center be open?* Will the center be made available to community residents during evening and weekend hours?

- *How will the community learning center be staffed?* For example, who will be responsible for scheduling the use of the community computer learning center? Who will be responsible for maintaining computer systems (including installing software, trouble shooting, configuring computers and printers, cleaning systems)?

- *How will the community computer learning center be promoted, both within the organization and throughout the community?* For example, will there be any special effort (e.g., flyers, posters) to encourage residents who do not usually visit the settlement house to access the computer lab?

- *What kind of computers, printers, scanners, etc., will be in the community computer learning center?* How will the computer systems be configured (i.e., networked or stand alone)? If systems are networked, what is the network strategy for providing appropriate levels of access to various users to computer applications and files? What kinds of applications will be installed on the computers?

- *How much will it cost to operate the community computer learning center?* For example, how much will it cost to purchase and maintain computer systems and peripherals? How much will be allocated for staff salaries? For software, computer literature, disks, computer paper, furniture, phone lines and other telecommunications costs (e.g., Internet accounts), etc.?

- *How will the community computer center be supported?* For example, grants (e.g., federal, state, and local government, private foundations, corporations, individuals), fees (e.g., from classes, public access use, membership fees), donations (e.g., equipment, volunteers).

- *How will the use, value, and effectiveness of the community computer learning center's programs and activities be documented?* For example, as they relate to your organization and the individuals and groups who participate in such computer learning activities.

Integrate the System with Existing Data Collection Activities. The project's Participant Record Management System (PRMS) was never envisioned as replacing existing local data collection procedures. Rather, it was viewed as a series of common data fields that could be shared across all settlement houses. Project staff indicated that a lesson from PRMS is that a system-wide reporting tool will be underutilized if it puts another major reporting requirement on

settlement house staff. Unfortunately, it will always be difficult for settlement houses to adopt a common set of data items when the reporting requirements of their funders (e.g., city and state human service agencies) are incompatible. In the words of one respondent, "It is not worth the effort to develop a second overlapping system that cannot conform to the requirements of the overlapping city/state systems." Nonetheless, project staff emphasized that any future efforts to develop common data elements would need to be integrated with existing collection activities.

Start Small with a Single Function or Program (like youth services) and Build Up—as Opposed to Starting with a Massive Structure and Building Down. Project staff indicated that their original vision was too broad, expensive, and political to be implemented without considerable buy-in and support from UNH's membership. For example, the Participant Record Management System initiative encountered opposition from settlement house staff who were concerned about sharing sensitive data (e.g., regarding battered women or undocumented immigrants) across agencies. Project staff cautioned that it can take time to work out a process that resolves these issues and allays these fears.

H. Summary and Conclusions

The ITI demonstrates the type of long-term benefit that TIIAP can have on human service agencies. Initially funded in 1994, the project did not begin to realize its full potential until after the TIIAP grant had expired. By the time of the site visit (May 1999), the technology activities begun as part of the TIIAP grant had dramatically transformed the way that staff at the participating settlement houses performed their functions and interacted with community residents. Equally important, the site visit uncovered evidence (in the form of on-site observations, interviews, and document reviews) that community residents—of all ages—have been provided new opportunities to use computers and access the Internet.

The success of the ITI is due, in large measure, to a series of steps taken by the grant recipient (United Neighborhood Houses of New York, Inc.) and the primary project partners (the 9 participating settlement houses) to (1) involve key stakeholders in the design and implementation of ongoing technology activities, (2) integrate technology to the point that it becomes indistinguishable from other functions and activities, (3) provide ongoing training to end users, (4) hire specialized staff to maintain the equipment and identify new ways to integrate technology into the workplace, and (5) spread the cost of technology-related expenditures across all programs that make use of computers and the Internet. The lessons learned by the project's

staff (outlined in the previous section) should be of use to other human service agencies looking to introduce technology into their workplace.